

# 4MP Enhanced Starlight Network PTZ Camera (4x)

Low-light Technology and WizSense Analytics



**WizSense**

WizSense Series devices combine Dahua's powerful Analytics+ with an intuitive and easy to use interface. WizSense devices offer Smart Motion Detection and Perimeter Protection functions that focus on human and vehicular images and ignore irrelevant images to capture important video while reducing false alarms. WizSense Series devices provide powerful general security for small to medium size businesses at a sensible price.

## System Overview

Featuring powerful optical zoom capabilities, accurate pan/tilt/zoom performance, and a small, compact form, this camera provides an all-in-one solution for capturing video security for small-sized applications. With Enhanced Starlight Technology, the camera is the perfect solution for low-light applications.

## Functions

### Enhanced Starlight Technology

For challenging low-light applications, Dahua's Starlight Ultra-low light Technology offers best-in-class light sensitivity, capturing details in low light applications down to 0.005 lux. The camera uses a set of optical features to balance light throughout the scene, resulting in clear images in dark environments.

### Perimeter Protection

Dahua Analytics+ includes Tripwire and Intrusion functions that offer custom tripwires based on object type for automation in limited access areas. Perimeter Protection requires fewer pixels to detect an object to deliver improved accuracy and decreased false alarms due to lights, weather, trees, or animals.

### Face Detection

Face Detection technology captures a human face in a digital image and then selects the best image and outputs a snapshot of the face.

### Predictive Focus Analysis (PFA) Technology

The camera uses innovative PFA Technology to improve zoom accuracy and to decrease focus time. A series of advanced algorithms more accurately judge the direction and the distance to a subject, improving picture clarity throughout the zooming process.

- 1/2.8-in. STARVIS™ CMOS Sensor
- Powerful 4x Optical Zoom Lens
- Enhanced Starlight Technology for Low-light Applications
- AI Coding, Smart H.265+ and Smart H.264+ Smart Dual Codec
- Maximum Frame Rate 4MP (2560 x 1440) at 30 fps
- Analytics+ Functions: Smart Motion Detection+, Face Detection, PFA Technology, Perimeter Protection
- IP66 Ingress Protection, IK10 Vandal Protection, TVS 6000 V Surge Protection
- Five-year Warranty\*



### Smart Motion Detection+

Smart Motion Detection+, a component of Dahua's Analytics+ technology, improves alarm accuracy and decreases the number of false alarms. The advanced SMD+ algorithm analyzes a scene for human or vehicle motion, while filtering out other motion due to trees, leaves, animals, weather, and triggers an alarm when detected.

### Smart H.265+ and Smart H.264+

Delivering high quality video without straining the network, Smart H.264+ is the optimized implementation of H.264. The Smart H.264+ encoding platform includes a scene adaptive encoding strategy, dynamic GOP, dynamic ROI, flexible multi-frame reference structure and intelligent noise reduction, providing a savings of up to 70% of bandwidth and storage when compared with standard H.264.

Smart H.265+ is the optimized implementation of the H.265 codec that uses a scene-adaptive encoding strategy, dynamic GOP, dynamic ROI, flexible multi-frame reference structure and intelligent noise reduction to deliver high-quality video without straining the network. Smart H.265+ technology reduces bit rate and storage requirements by up to 70% when compared to standard H.265 video compression.

### Environmental

The camera complies with the IK10 Vandal Resistance impact rating making it capable of withstanding the equivalent of 5 kg (11.02 lbs) of force dropped from a height of 40 cm (15.75 in.). Subjected to rigorous dust and water immersion tests and certified to the IP66 Ingress Protection rating makes it suitable for demanding outdoor applications.

Supporting dual voltage input (12 VDC or PoE) and a ±10% input voltage tolerance, this camera suits even the most unstable power supply conditions. Its TVS 6000 V lightning rating protects the camera and its structure from the effects of lightning on the camera and its structure.

**Technical Specification**

Camera		
Image Sensor	1/2.8-in. CMOS	
Effective Pixels	2560 (H) × 1440 (V)	
RAM/ROM	512 MB/128 MB	
Scanning System	Progressive	
Electronic Shutter Speed	1/1 s to 1/30,000 s	
Minimum Illumination	Color	0.005 lux at F1.6
	B/W	0.0005 lux at F1.6

Lens				
Focal Length	2.8 mm to 12 mm			
Maximum Aperture	F1.6 to F3.0			
Angle of View	Horizontal	90.3° to 29.4°		
	Vertical	48.5° to 16.6°		
	Diagonal	105.7° to 33.6°		
Optical Zoom	4x			
Focus Control	Automatic, Semi-automatic, Manual			
Iris Control	Fixed			
Close Focus Distance	1.5 m (4.92 ft)			
DORI <sup>1</sup> Distance	Detect	Observe	Recognize	Identify
	240 m (787.40 ft)	94.8 m (311.02 ft)	48 m (157.48 ft)	24 m (78.74 ft)

PTZ		
Pan/Tilt Range	Pan	0° to 355°
	Tilt	0° to 90°
Manual Control Speed	Pan	0.1° to 100°/s
	Tilt	0.1° to 60°/s
Preset Speed	Pan	100°/s
	Tilt	0°/s
Presets	300	
PTZ Mode	5 Patterns, 8 Tours (Up to 32 Presets per Tour), 5 Scans	
PTZ Protocol	SD Pelco-P/D (Auto-recognition)	
Idle Motion	Activate Preset/Scan/Tour/Pattern if there is no command in the specified period	

Video		
Video Compression	AI Coding, H.264H, H.264B, Smart H.265+, H.264, H.265, MJPEG(Sub Stream), Smart H.264+	
Streaming Capability	Three (3) Streams	
Resolution	4MP (2560 × 1440), 3MP (2304 × 1296), 1080P (1920 × 1080), 1.3MP (1280 × 960), 720P (1280 × 720), D1 (704 × 480), VGA (640 × 480), CIF(352 × 288)	
Frame Rate	Main Stream	4MP/3MP/1080p/1.3MP/720p at 1 to 30 fps
	Sub Stream 1	D1/VGA/CIF at 1 to 30 fps
	Sub Stream 2	720p at 1 to 30 fps
Bit Rate Control	CBR/VBR	
Bit Rate	H.264	2,816 Kbps to 13,056 Kbps
	H.265	1,024 Kbps to 7,936 Kbps
Day/Night	Auto (ICR), Color, B/W	
Backlight Compensation	BLC, DWDR, HLC	
White Balance	Auto, Indoor, Outdoor, Tracking, Manual, Sodium Lamp, Natural Light, Street Lamp	
Gain Control	Auto, Shutter Priority, Gain Priority, Manual	
Noise Reduction	2D, 3D	
Advanced Features	Motion Detection, Region of Interest (RoI), Image Stabilization, Electronic Defog	
Digital Zoom	16x	
S/N Ratio	≥ 55 dB	
Network		
Ethernet	One (1) RJ-45 Port (10/100 Base-T)	

Protocol	TCP, FTP, RTMP, IPv6, Bonjour, IPv4, DNS, RTCP, PPPoE, NTP, RTP, 802.1x, HTTPS, SNMP, TCP/IP, DDNS, UPnP, NFS, ICMP, UDP, IGMP, IP Filter, SMB, HTTP, SSL, DHCP, SMTP, SNMPv1/v2c/v3(MIB-2), Qos, RTSP, ARP
Interoperability	CGI, ONVIF (Profile S, G, T)
Streaming Method	Unicast/Multicast
Maximum User Access	20 Users (Total Bandwidth 64 Mbps)
Edge Storage	Micro SD Card (Max 256 GB), FTP, SFTP, NAS
Browser	Safari (iOS 10 or Later), Microsoft Edge, Google Chrome 41 or Later, Firefox 50 or Later
Management Software	DSS, DMSS
Mobile Client	iOS, Android

Certifications	
CE	IEC 62368-1, EN 55032, EN IEC 61000-3-2, EN55024, EN55035, EN50130-4
FCC	47 CFR FCC Part15, Subpart B, NSI C63.4

Interface	
Alarm Linkage	Capture, Recording, Send Email, Preset, Tour, Pattern, Alarm Digital Input
Alarm Event	Motion/Tampering Detection, Audio Detection, Network Disconnection Detection, IP Conflict Detection, Memory Card State Detection, Memory Space Detection

Electrical		
Power Supply	12 VDC/3A±10%, PoE (802.3at)	
Power Consumption	Basic	2.3 W
	Maximum	6.1 W

Environmental	
Operating Temperature	-30 °C to +60 °C (-22 °F to +140 °F)
Operating Humidity	≤ 95%
Storage Temperature	-30 °C to +60 °C (-22 °F to +140 °F)
Storage Humidity	≤ 95%
Ingress Protection	IP66
Vandal Resistance	IK10
Surge Protection	TVS 6000 V

Construction	
Product Dimensions	89 mm × 122 mm (3.50 in. × 4.80 in.)
Net Weight	0.5 kg (1.10 lb)
Gross Weight	0.7 kg (1.54 lb)

Analytics+ Functions	
Face Detection	<ul style="list-style-type: none"> <li>Detects and captures a snapshot of a human face in a defined area within a scene.</li> </ul>
Smart Motion Detection+	<ul style="list-style-type: none"> <li>Differentiates between and classifies human and vehicle objects.</li> <li>Filters false alarms due to leaves, lights, animals, and other inconsequential objects.</li> <li>Extracts human or vehicle objects from recorded video for quick target search and retrieval.</li> </ul>
Perimeter Protection	<ul style="list-style-type: none"> <li>Detects human violations using the following methods:                             <ul style="list-style-type: none"> <li><b>Tripwire:</b> a target crosses a defined line.</li> <li><b>Intrusion:</b> a target enters or exits a defined perimeter.</li> </ul> </li> <li>Monitors a combination of detection methods.</li> </ul>

Intelligent Video System (IVS) Functions	
IVS triggers an alarm and takes a defined action for the following events:	
Standard Features	Tampering with the camera. Error writing to an onboard Micro SD card. Error sending or receiving data over the network. Unauthorized access to the camera.
Premium Features	
Tripwire	A target crosses a user-defined line.
Intrusion	A target enters or exits a defined perimeter.

Abandoned/Missing Object	A target leaves an object in designated area, or a target removes an object from the same designated area.
Advanced Features	
Loitering Detection	Target is in motion inside a defined area longer than a specified amount of time.
Fast Moving	Target exceeds a set speed when exiting a defined area.
Parking Detection	Vehicle remains in a defined area without motion for a set period of time.
Crowd Gathering	Specified number of people remain inside a defined area for a set time.
Human/Vehicle Classification	Detects human or vehicle violations using Tripwire or Intrusion detection methods.

## Ordering Information

Type	Part Number	Description
Network Camera	22404DBNR	4MP Enhanced Starlight WizSense Network PTZ Camera (4x)
Accessories (Optional)	PFA137	Junction Box
	PFA203W	Wall Mount Bracket
	PFA152-E	Pole Mount Bracket
	PFA106	Mount Adapter
	DH-PFB200C	In-ceiling Mount Bracket
	PFB220C	Ceiling Mount Bracket
	PFB305W	Wall Mount Bracket
	DH-PFM321D-US	12 VDC 1A Power Adapter
	DH-PFM900-E	Integrated Mount Tester
DH-TF-P100 Series	MicroSDXC Cards	

## Accessories

Optional:



PFA137  
Junction Box



PFA203W  
Wall Mount Bracket



PFA152-E  
Pole Mount Bracket



PFA106  
Mount Adapter



DH-PFB200C  
In-ceiling Mount Bracket



PFB220C  
Ceiling Mount Bracket



PFB305W  
Wall Mount Bracket



DH-PFM321D-US  
12 VDC 1A Power Adapter



DH-PFM300-E  
Integrated Mount Tester



DH-TF-P100 Series  
MicroSDXC Cards

For all possible accessory combinations for this camera, please scan or click the QR code below to go to our accessory selector.



## Installation

Ceiling Mount	Ceiling Mount	Ceiling Mount
PFA106+PFB220C	No Accessory	PFA137
Pole Mount(Vertical)	Pole Mount(Vertical)	Pole Mount(Horizontal)
PFA106+PFB305W+PFA150	PFB203W+PFA152-E	PFA106+PFB220C+PFA150
Wall Mount	Wall Mount	Corner Mount
PFA106+PFB305W+PFA120	PFB203W	PFA106+PFB305W+PFA151

## Dimensions

mm [in.]

